

National Grid SA-COA **PRODUCTION FILE**

Contractor : ABB Contracting Co.

Project : SS 8709- 132/13.8kV in Alkharj City

Contract No : 11131113/00

Substation : 8709

**Subject : 132Kv Busbar Protection Set-2 (+BBP2-1)
Relay Panel-1**

ABB



POWER SYSTEMS NETWORK MANAGEMENT
PROTECTION AND SUBSTATION AUTOMATION SYSTEMS
WBS NO: S-13656

ABB AUTOMATION COMPANY LTD.,
414, AL-KHARJ ROAD
SECOND INDUSTRIAL CITY
RIYADH-11383 K.S.A

CONTRACTOR : ABB Contracting Company
CLIENT : National Gridsa
PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY
SUBSTATION : S/S 8709
CONTRACT NO. : 11131113/00
TITLE : Assembly Drawing – +BBP2-1
[132KV BUSBAR PROTECTION MAIN-2 CENTRAL UNIT PANEL]

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY KVR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

COVER SHEET

132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



نقل الكهرباء
National Grid sa

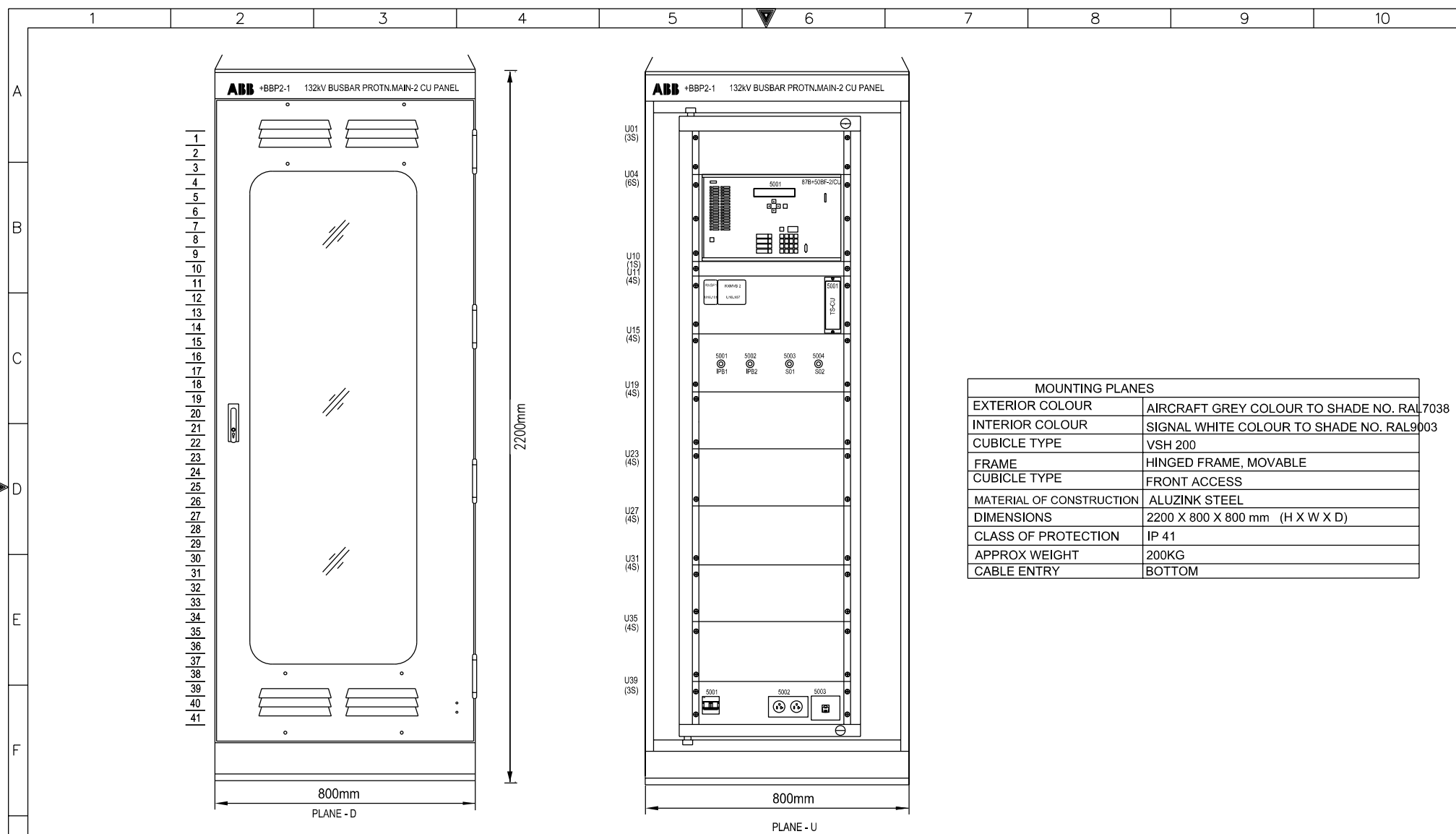
INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-323000	SHT CONT. 000 001	01

NG/D2-D (2012/01)

DMS


VECTOR

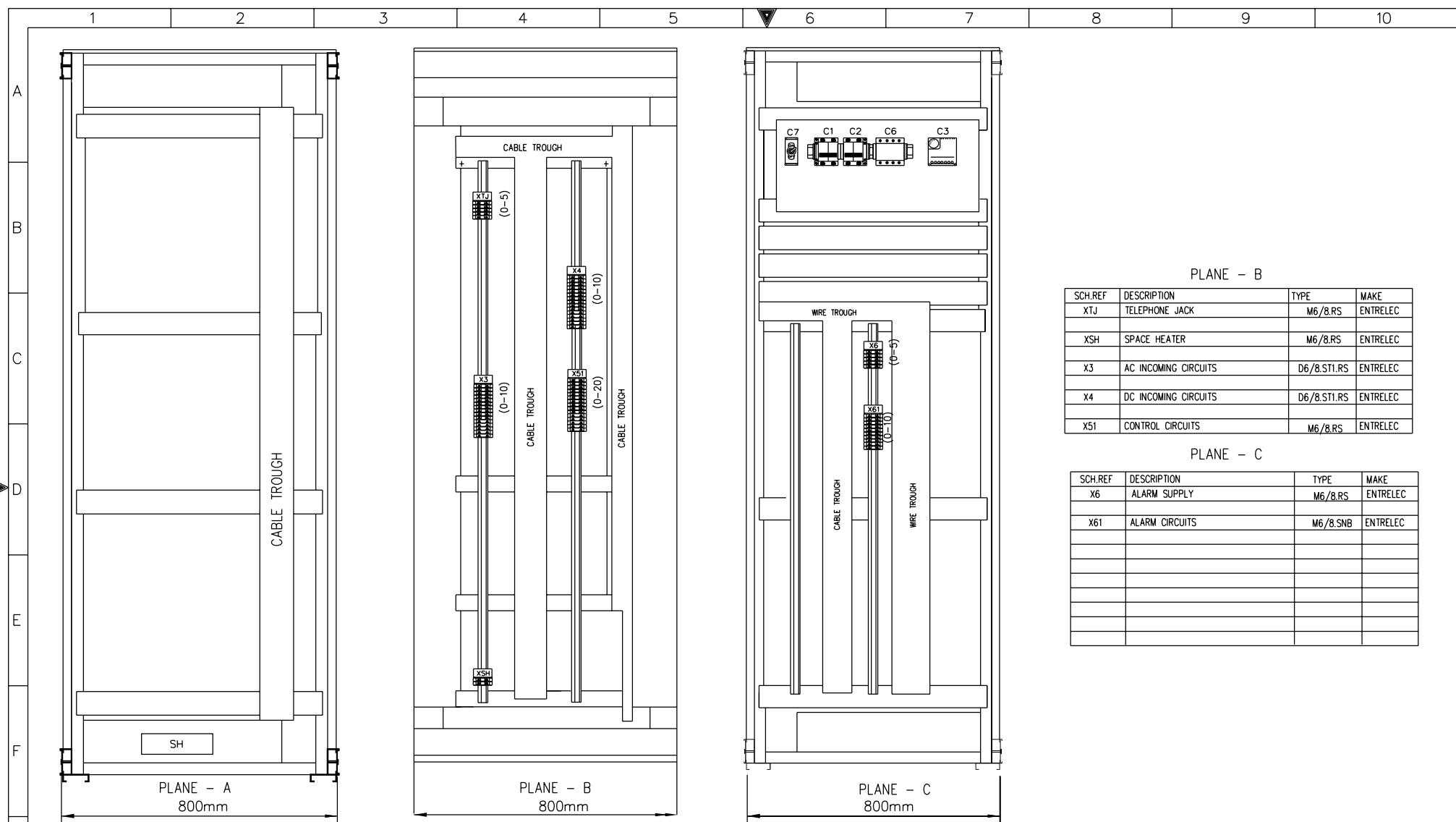
NGD200



MOUNTING PLANES	
EXTERIOR COLOUR	AIRCRAFT GREY COLOUR TO SHADE NO. RAL7038
INTERIOR COLOUR	SIGNAL WHITE COLOUR TO SHADE NO. RAL9003
CUBICLE TYPE	VSH 200
FRAME	HINGED FRAME, MOVABLE
CUBICLE TYPE	FRONT ACCESS
MATERIAL OF CONSTRUCTION	ALUZINK STEEL
DIMENSIONS	2200 X 800 X 800 mm (H X W X D)
CLASS OF PROTECTION	IP 41
APPROX WEIGHT	200KG
CABLE ENTRY	BOTTOM

G

AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656	ASSEMBLY DRAWING		<div><div>الشركة الوطنية لنقل الكهرباء</div><div><div></div><div>نقل الكهرباء</div><div>National Grid SA</div></div></div>					
01	13 49	FACTORY ASBUILT FOR APPROVAL	DRAWN BY RIZ CHECKED BY KVR		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
00	13 04		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		-	C421	CD-323000	SHT CONT G01 G02	01
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA						



PLANE - B

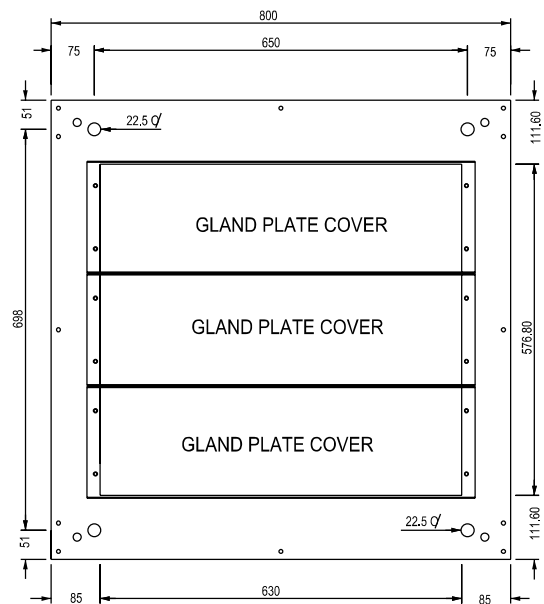
SCH.REF	DESCRIPTION	TYPE	MAKE
XTJ	TELEPHONE JACK	M6/8.RS	ENTRELEC
XSH	SPACE HEATER	M6/8.RS	ENTRELEC
X3	AC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X4	DC INCOMING CIRCUITS	D6/8.ST1.RS	ENTRELEC
X51	CONTROL CIRCUITS	M6/8.RS	ENTRELEC

PLANE - C

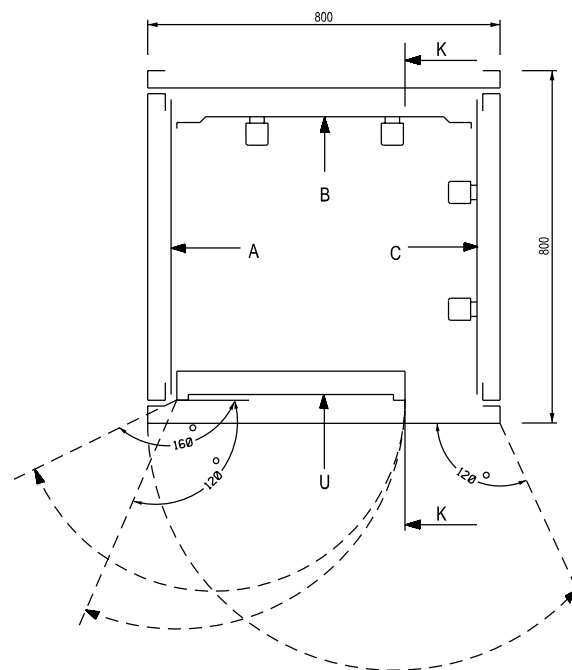
SCH.REF	DESCRIPTION	TYPE	MAKE
X6	ALARM SUPPLY	M6/8.RS	ENTRELEC
X61	ALARM CIRCUITS	M6/8.SNB	ENTRELEC

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656	ASSEMBLY DRAWING		الشركة الوطنية لنقل الكهرباء		
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REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC	RIYADH SAUDI ARABIA		-	C421	CD-323000
									SHEET NO. SHT CONT.
									G02 G03
									REV. NO. 01

BASE PLATE/
FOUNDATION



PLAN



AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

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ASSEMBLY DRAWING

132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-323000	G03 G04	01

NG/D2-D (2012/01)
DMS VECTOR NGD200

	1	2	3	4	5	6	7	8	9	10
A										
B										
C										
D										
E										
F										
G										

TOP VIEW FOR EARTHING BAR

U PLANE TOP LABEL

ABB +BBP2-1 132kV BUSBAR PROTN.MAIN-2 CENTRAL UNIT PANEL

800

28

U PLANE BOTTOM LABEL

ABB AUTOMATION CO. LTD

800

28

MANUFACTURING LABEL

ABB ABB Automation Co.Ltd.

PROJECT : National Grid SA
S/S 8709

ORDER REFERENCE : 2875 RF S13656

YEAR OF MANUFACTURE: 2013

PANEL NO. : +BBP2-1

DRAWING NO. : S13656-CD-323000

MADE IN THE KINGDOM OF SAUDI ARABIA

AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656	ASSEMBLY DRAWING		الشركة الوطنية لنقل الكهرباء National Grid sa				
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SUBSTATION : S/S 8709
CONTRACT NO. : 11131113/00
TITLE : LIST OF APPARATUS +BBP2-1
[132KV BUSBAR PROTECTION MAIN-2 CENTRAL UNIT PANEL]

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RIYADH SAUDI ARABIA


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INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-323000	SHT 1 CONT. L00 L01	01

DMS VECTOR NGD200

	1	2	3	4	5	6	7	8	9	10	
A	SR. NO.	GA. REF.	SCH. REF.	DESCRIPTION		SHT.	QTY.	TYPE	MAKE	ORDERING INFORMATION	
	1	U04.5001	87B+50BF-2/CU	RELAY CUBICLE- +BBP2-1 FOR 132KV BB/BF MAIN-2 ACCOMODATING THE FOLLOWING			1	VSH 200	ABB		
				CENTRAL UNIT FOR NUMERICAL BUSBAR PROTECTION WITH FOLLOWING		298	1	7SS522	SIEMENS	7SS5220-4AB92-KAO/HH	
				HIGH RELIABILITY DUE TO TWO INDEPENDENT MEASUREMENT CRITERIA		299					
				STABILIZED DIFFERENTIAL CURRENT ALGORITHM							
				DIRECTIONAL CURRENT COMPARISION ALGORITHM							
				HIGH TROUGH FAULT STABILITY EVEN IN CASE OF CT SATURATION.							
				END FAULT PROTECTION							
				FULL SOLID STATE BUSBAR REPLICA WITHOUT SWITCHING OF CT CIRCUIT,							
				THEREFORE NO CHECK ZONE REQUIRED							
B				PHASE SEGREGATED MEASUREMENT							
				REDUCE CT PERFORMANCE REQUIREMENTS							
				BUILT IN EVENT RECORDER,BUILT IN EVENT DISTURBANCE RECORDER							
				BUILT IN HUMAN MACHINE INTERFACE,FULLY NUMERICAL SIGNAL PROCESSING							
				BINARY INPUT : 12							
				BINARY OUTPUT : 16+2 WD							
				FULLY NUMERICAL SIGNAL PROCESSING							
				AUX. VOLTAGE : 110-125V DC							
				RATED FREQUENCY : 60HZ							
C	2	U15.5001	IPB1	PUSH BUTTON FOR BUS IMAGE ALARM RESET		231	1	MP1-10B	ABB	1SFA 616 100 R1006	
				BUTTON COLOUR : BLACK				MCBH-20		1SFA 616 600 R1102	
				CONTACT DATA : 1NO +1NC							
	3	U15.5002	IPB2	PUSH BUTTON FOR ALARM/INDICATION RESET		231	1	MP1-10B	ABB	1SFA 616 100 R1006	
				BUTTON COLOUR : BLACK				MCBH-20		1SFA 616 600 R1102	
				CONTACT DATA : 1NO +1NC							
	4	U15.5003	S01	PUSH BUTTON FOR BBP IN SELECTION		232	1	MP1-10B	ABB	1SFA 616 100 R1006	
				BUTTON COLOUR : BLACK				MCBH-20		1SFA 616 600 R1102	
				CONTACT DATA : 1NO +1NC							
D	5	U15.5004	S02	PUSH BUTTON FOR BBP OUT SELECTION		232	1	MP1-10B	ABB	1SFA 616 100 R1006	
				BUTTON COLOUR : BLACK				MCBH-20		1SFA 616 600 R1102	
				CONTACT DATA : 1NO +1NC							
	6	U11.101	74DC-2/CU / SPARE	DUAL TARGET RELAY FOR 87B+50BF-2/CU DC SUPERVISION		232	1	RXSF 1	ABB	RK 271 019-AN	
				AUXILIARY VOLTAGE : 110-125V DC							
				CONTACT DATA : 1NO + 2NC PER COIL							
				FLAG : SELF RESET							
E	AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		LIST OF APPARATUS				
	01	13 49	FACTORY ASBUILT		DRAWN BY RIZ CHECKED BY KVR		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1				
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							-	C421	CD-323000	L01 L02	01
F											






نقل الكهرباء
National Grid sa

الشركة الوطنية لنقل الكهرباء

NG/D2-D (2012/01)

DMS VECTOR NGD200

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<div>NG/D2-D (2012/01)</div> <div>DMS VECTOR NGD200</div>																																																																																																																																																																																																

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POWER SYSTEMS NETWORK MANAGEMENT
PROTECTION AND SUBSTATION AUTOMATION SYSTEMS
WBS NO: S-13656

ABB AUTOMATION COMPANY LTD.
414, AL-KHARJ ROAD
SECOND INDUSTRIAL CITY
RIYADH-11383 K.S.A

CONTRACTOR : ABB Contracting Company
CLIENT : National Gridsa
PROJECT : CONSTRUCTION OF NEW 132/13.8kV SS 8709 IN AL-KHARJ CITY
SUBSTATION : S/S 8709
CONTRACT NO. : 11131113/00
TITLE : SCHEMATICS DRAWINGS – +BBP2-1
[132KV BUSBAR PROTECTION MAIN-2 CENTRAL UNIT PANEL]

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY KVR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

COVER SHEET

132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



نقل الكهرباء
National Grid sa

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-323001	SHT CONT. 000 001	01

NG/D2-D (2012/01)


DMS

VECTOR

NGD200

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AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		CONTENTS SHEET		<div>الشركة الوطنية لنقل الكهرباء</div> <div> نقل الكهرباء</div> <div>National Grid sa</div>				
01	13 49	FACTORY ASBUILT		DRAWN BY RIZ CHECKED BY KVR		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY					SHT CONT.	
REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-323001	001 011	01

NG/D2-D (2012/01)

DMS VECTOR NGD200

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SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	FRAME CONNECTION		MAIN CONTACT OF A CIRCUIT BREAKER		RELAY WITH TWO MAKE CONTACTS, ONE OF THEM DELAYED WHEN OPERATING
	EARTH CONNECTION		PASSING MAKE CONTACT CLOSING MOMENTARILY DURING OPERATION AND RELEASE		RELAY WITH TWO ACTUATORS AND A TWO STABLE POSITIONS
	RESISTOR		BREAK CONTACT DELAYED WHEN OPERATING		
	VARIABLE RESISTOR		MAKE CONTACT DELAYED WHEN RELEASING		SIGNALLING LAMP
	RESISTOR WITH PRESET ADJUSTMENT		TWO MECHANICAL LINKS CROSSING WITHOUT CONNECTION		MECHANICAL INDICATOR WITH AUTOMATIC RESET
	CAPACITOR		JUNCTION OF MECHANICAL LINKS		MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	SEMICONDUCTOR DIODE USED AS A CAPACITIVE DEVICE		AUTOMATIC RESET		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH AUTOMATIC RESET
	OPEN CONTACT, MAKE CONTACT		NON-AUTOMATIC RESET		ELECTRICALLY CONTROLLED MECHANICAL INDICATOR WITH NON-AUTOMATIC RESET
	CLOSED CONTACT, BREAK CONTACT		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH AUTOMATIC RESET		RELAY WITH MAKE CONTACT
	CHANGE-OVER CONTACT, BREAK BEFORE MAKE		SWITCHING DEVICE WITH MANUAL OPERATION AND WITH NON-AUTOMATIC RESET		RELAY WITH CHANGE-OVER CONTACT
	MAKE CONTACT WHICH IS EARLY WHEN OPERATING AND LATE WHEN RELEASING		CHANGE-OVER SWITCHING DEVICE WITH MANUAL CONTROL		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING
	BREAK CONTACT WHICH IS LATE WHEN OPERATING AND EARLY WHEN RELEASING		RELAY WITH MAKE CONTACT, DELAYED WHEN RELEASING		RELAY WITH MAKE CONTACT, DELAYED WHEN OPERATING AND RELEASING
	SWITCHING DEVICE WITH MANUAL CONTROL				
	MAKE CONTACT DELAYED WHEN OPERATING				
	BREAK CONTACT DELAYED WHEN RELEASING				
	MAKE CONTACT DELAYED WHEN OPERATING AND RELEASING				
	MAIN CONTACT OF A SWITCH DISCONNECTOR				
	MAIN CONTACT OF A DISCONNECTOR				

AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656	GRAPHICAL SYMBOLS FOR DIAGRAMS		الشركة الوطنية لنقل الكهرباء			
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY KVR	132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1		نقل الكهرباء			
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED	S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		National Grid sa			
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC	RIYADH	SAUDI ARABIA	INDEX	PLANT NO. C421	DRAWING NUMBER CD-323001	SHEET NO. 011 012

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LEGENDS		NOTES	
±CU	DC SUPPLY - CENTRAL UNIT CIRCUIT	LABELS	
±BU/D07	DC SUPPLY - BAY UNIT-D07 CIRCUIT	WHITE LABEL WITH BLACK LETTERING WILL BE PROVIDED FOR ALL	
±BU-D05	DC SUPPLY - BAY UNIT-D05 CIRCUIT	MOUNTED APPARATUS EQUIPMENT IDENTIFICATION AND FUNCTION	
		REFERENCE LABEL WILL BE PROVIDED FOR FRONT MOUNTED	
		EQUIPMENTS OF THE PANEL AND EQUIPMENT IDENTIFICATION	
		LABEL WILL BE PROVIDED FOR INTERNALLY MOUNTED EQUIPMENTS	
		WIRING	
CR	CONTROL ROOM	PVC INSULATED 600V GRADE	
ECC	ENERGY CONTROL CENTRE	2.5 SQ.mm. YELLOW COLOURED FOR CT CIRCUITS	
LOCAL	THE LOCATION OF CONTROLLED DEVICE	2.5 SQ.mm. RE COLOURED FOR VT CIRCUITS	
REMOTE	ANY OTHER LOCATION NOT LOCAL	1.5 SQ.mm. GREY COLOURED FOR DC SUPPLY, SCADA AND CONTROL CIRCUITS	
		2.5 SQ.mm. BLACK COLOURED FOR AC CIRCUITS	
ON	CB NORMALLY OPEN AUXILIARY CONTACT	2.5 SQ.mm. YELLOW/GREEN COLOURED FOR EARTHING CONNECTIONS	
OFF	CB NORMALLY CLOSED AUXILIARY CONTACT	FOLLOWING MARKERS SHALL BE PROVIDED ON FOLLOWING WIRES:	
A	COMMON	+ SIGN FOR DC + WIRE	
T	TEST POSITION	- SIGN FOR DC - WIRE	
S	SERVICE POSITION	LUGS	
CS	CLOSE IN SERVICE POSITION	A. CT CIRCUITS- RING TYPE	
CT	CLOSE IN TEST POSITION	B. OTHER CIRCUITS - SPADE TYPE	
LS	LOCAL SERVICE	FERULLING	
LT	LOCAL TEST	YELLOW TUBE 3.2 mm FOR 1.5SQ mm WIRES AND 4.2 FOR 2.5 SQ mm WIRES	
LC	LOCAL CLOSE	(AS PER 31 - TMSS-1, RE.0)	
LO	LOCAL OPEN		
RO	REMOTE OPEN		
OP	OPERATE		
RE	RESET		

G

AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00	JOB ORDER NO. S-13656
01	13 49	FACTORY ASBUILT FOR APPROVAL	DRAWN BY RIZ CHECKED BY KVR
00	13 04		DATE STARTED 24.01.2013 DATE COMPLETED _____
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

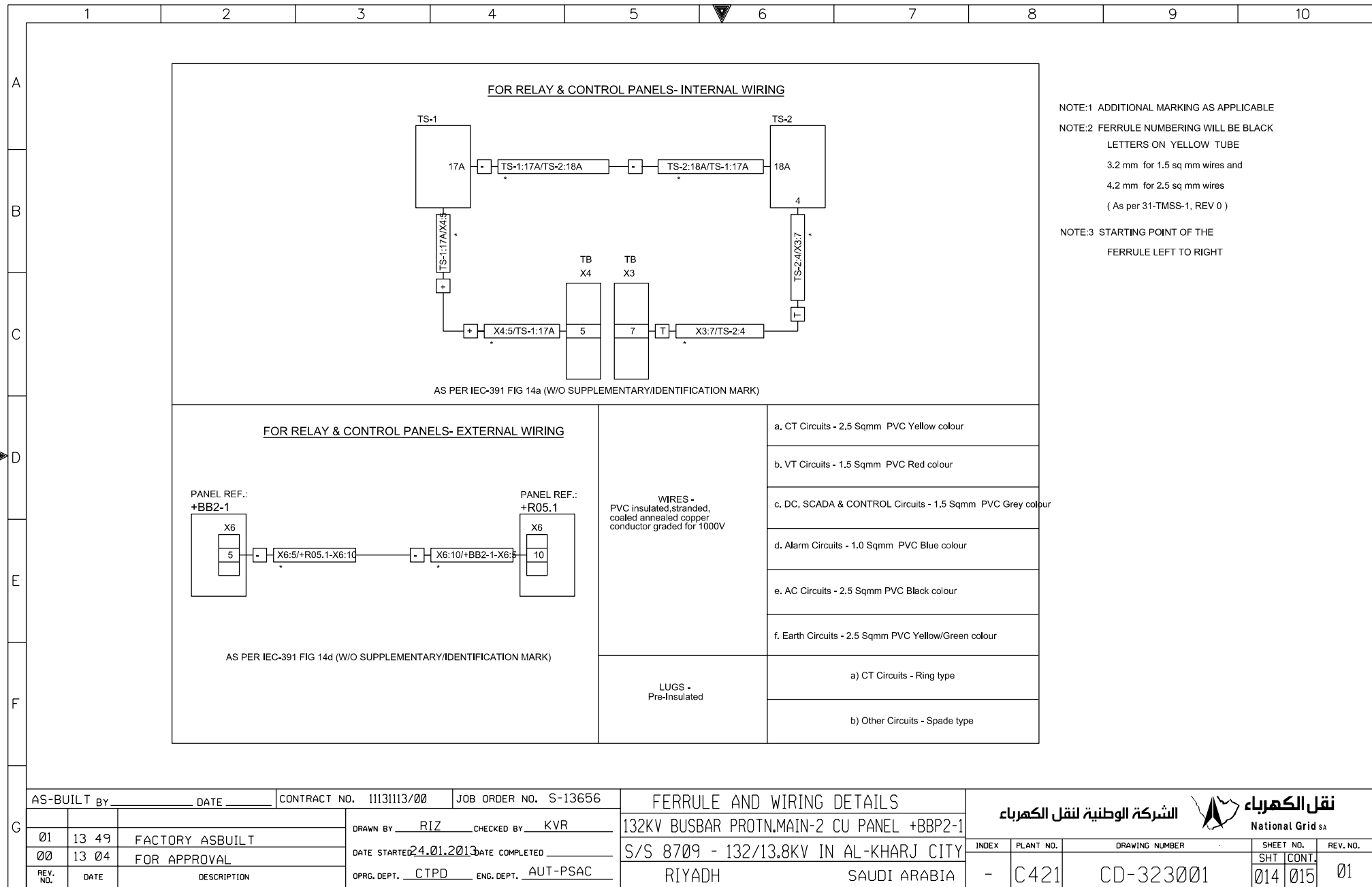
COMMON LEGEND			
132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1			
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			
RIYADH SAUDI ARABIA			

الشركة الوطنية لنقل الكهرباء




National Grid SA

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-323001	SHT CONT 013 014	01



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AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DRAWING REFERENCES		الشركة الوطنية لنقل الكهرباء		نقل الكهرباء National Grid sa		
01	13 49	FACTORY ASBUILT		DRAWN BY RIZ CHECKED BY KVR		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1		INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
00	13 04	FOR APPROVAL		DATE STARTED 24.01.2013 DATE COMPLETED _____		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY					SHT CONT.	
REV. NO.	DATE	DESCRIPTION		OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA		-	C421	CD-323001	015 016	01

MANUFACTURER		SCHEMATICS DWG.NO	PANEL DESCRIPTION	PANEL REFERENCE
 PROTECTION & SUBSTATION AUTOMATION			SS 8709 132kv RELAY PANELS	
		CD-322928	132/13.8kv GT-1 RELAY PANEL -1	+R05.1
			132/13.8kv GT-1 RELAY PANEL -2	+R05.2
		CD-322931	132/13.8kv GT-2 RELAY PANEL -1	+R01.1
			132/13.8kv GT-2 RELAY PANEL -2	+R01.2
		CD-322934	132/13.8kv GT-3 RELAY PANEL -1	+R04.1
			132/13.8kv GT-3 RELAY PANEL -2	+R04.2
		CD-322936	132/13.8kv TRANSFORMER-1,2& 3 AVC PANEL	+AVC
		CD-322922	132KV SPARE-1 UGF RELAY PANEL -1	+R07.1
			132KV SPARE-1 UGF RELAY PANEL -2	+R07.2
		CD-322916	132KV 8020 UGF RELAY PANEL -1	+R02.1
			132KV 8020 UGF RELAY PANEL -2	+R02.2
		CD-322919	132KV 8710 UGF RELAY PANEL -1	+R03.1
			132KV 8710 UGF RELAY PANEL -2	+R03.2
		CD-322925	132KV SPARE-2 UGF RELAY PANEL -1	+R06.1
			132KV SPARE-2 UGF RELAY PANEL -2	+R06.2
		CD-323012	132KV FOIP PANEL	+FOIP
		CD-322946	132kv BUS COUPLER-A	+R130
		CD-322948	132kv BUS COUPLER-B	+R230
		CD-322950	132kv BUS SECTION	+R120
		CD-322991	132kv BUSBAR PROTECTION MAIN-1 CENTRAL UNIT PANEL	+BBP1-1
		CD-322993	132kv BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BBP1-2
		CD-322995	132kv BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BBP1-3
		CD-322997	132kv BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BBP1-4
CD-322999	132kv BUSBAR PROTECTION MAIN-1 BAY UNIT PANEL	+BBP1-5		
CD-323001	132kv BUSBAR PROTECTION MAIN-2 CENTRAL UNIT PANEL	+BBP2-1		
CD-323003	132kv BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BBP2-2		
CD-323005	132kv BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BBP2-3		
CD-323007	132kv BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BBP2-4		
CD-323009	132kv BUSBAR PROTECTION MAIN-2 BAY UNIT PANEL	+BBP2-5		

NG/D2-D (2012/01)
DMS VECTOR NGD200

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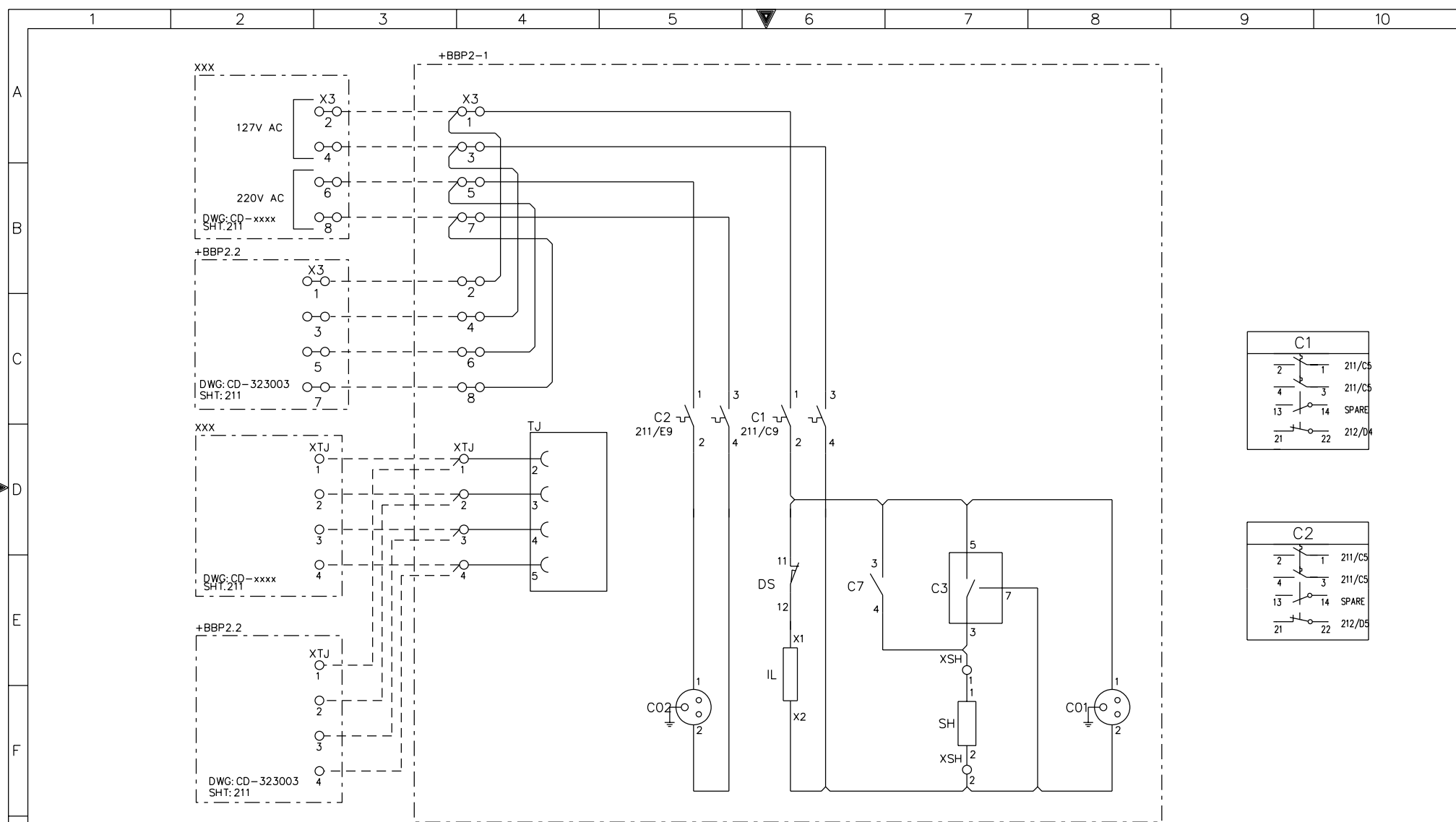
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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DRAWING REFERENCES			الشركة الوطنية لنقل الكهرباء National Grid sa	
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY KVR		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1			INDEX	PLANT NO.
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			DRAWING NUMBER	SHEET NO.
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA			CD-323001	SHT CONT.
										016 211	REV. NO.
											01

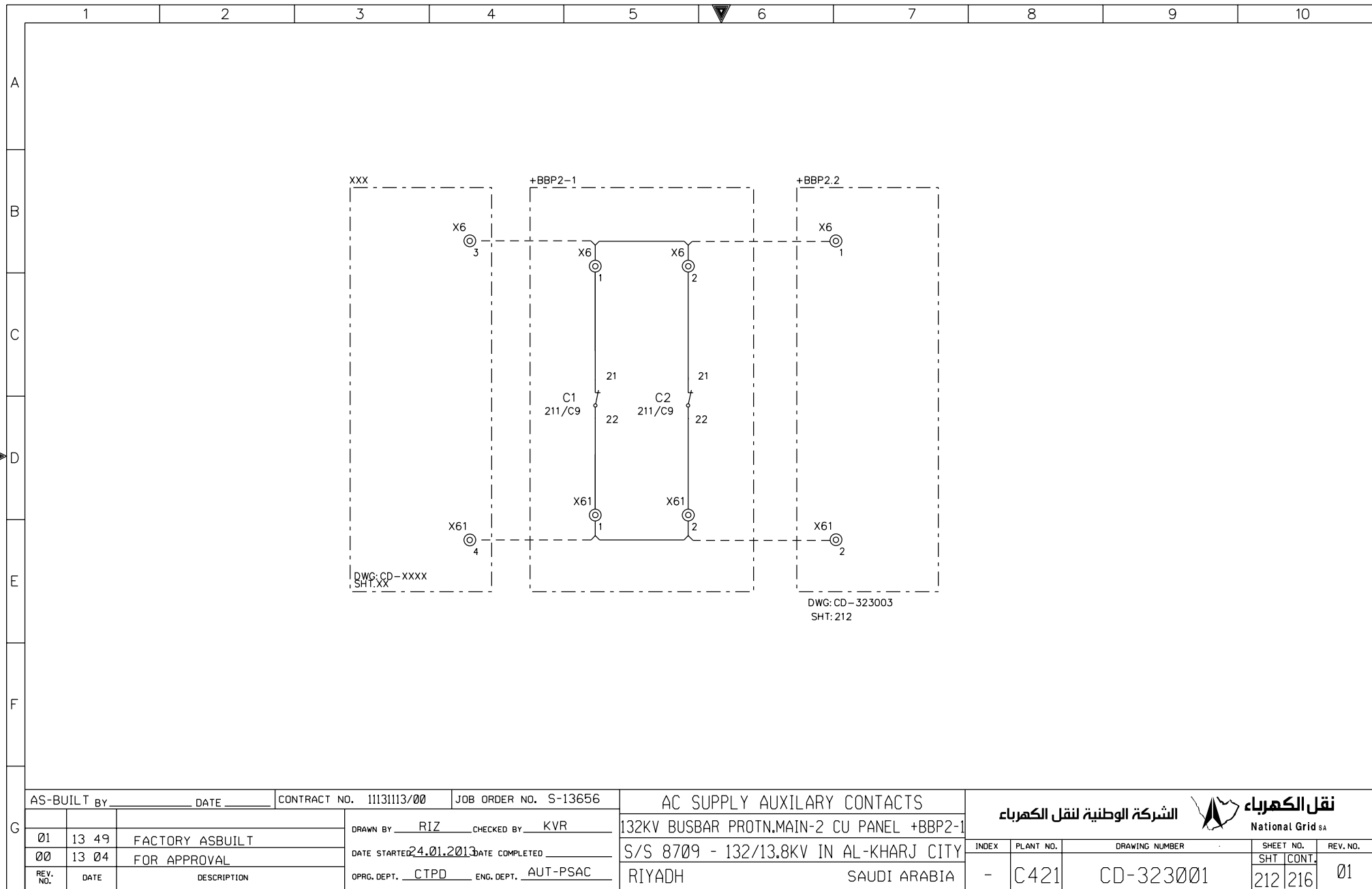


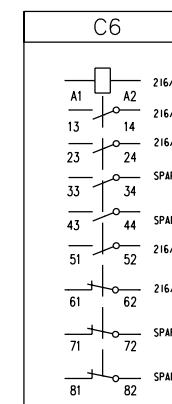
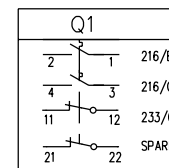
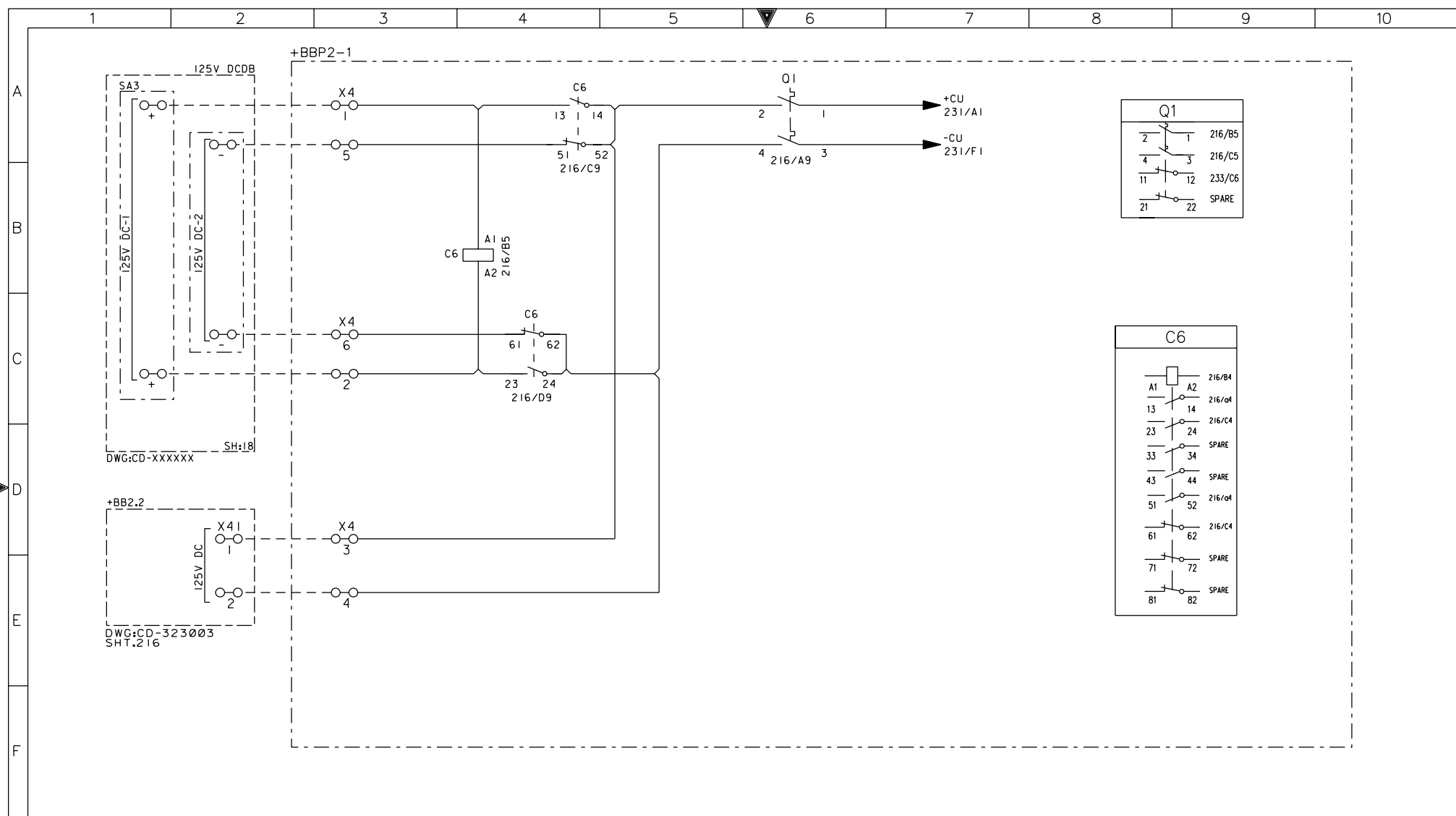
PROTECTION & SUBSTATION
AUTOMATION

MANUFACTURER	SCHEMATICS DWG.NO	PANEL DESCRIPTION	PANEL REFERENCE
ABB		SS 8709 13.8KV RELAY PANELS	
	CD-322952	13.8KV Capacitor Bank-1 Protection Panel	+CBP-1
	CD-322954	13.8KV Capacitor Bank-2 Protection Panel	+CBP-2
	CD-322956	13.8KV Capacitor Bank-2 Protection Panel	+CBP-3
	CD-322958	13.8 KV ACCS PANEL	+ACCS
	CD-322962	13.8KV ACSE PANEL	+ACSE
	CD-322968	13.8KV Under Voltage Load Shedding Panel	+UVLS
	CD-322964	13.8KV Under Frequency Load Shedding Panel-1	+UFLS01
	CD-322966	13.8KV Under Frequency Load Shedding Panel-2	+UFLS02

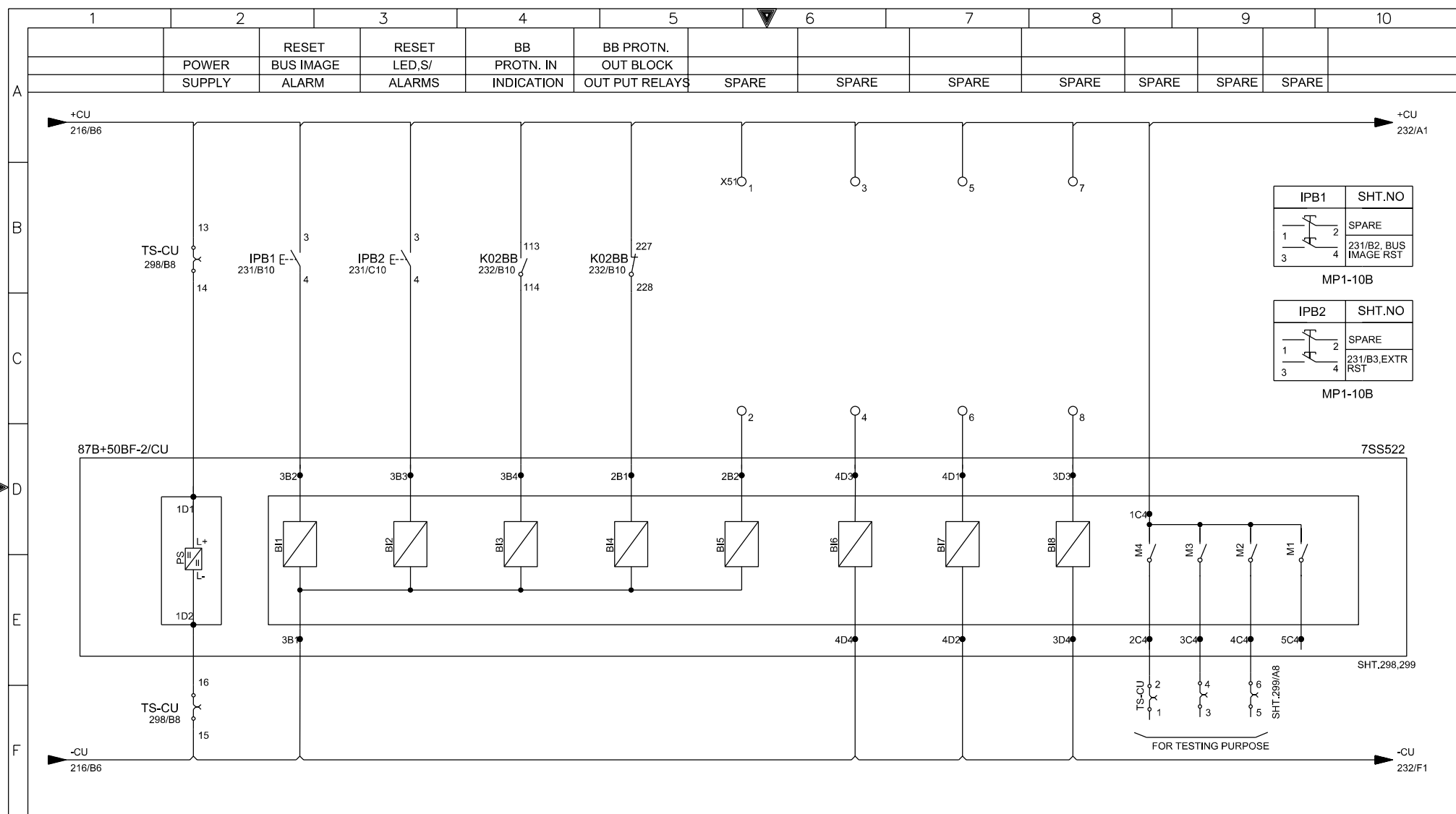


AS-BUILT BY _____ DATE _____		CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		AC SUPPLY FOR ILLUMINATION & POWER SOCKET		الشركة الوطنية لنقل الكهرباء		نقل الكهرباء	
DRAWN BY RIZ		CHECKED BY KVR		DATE STARTED 24.01.2013		DATE COMPLETED _____		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1		National Grid SA	
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		RİYADH		SAUDI ARABIA		INDEX		PLANT NO. C421		DRAWING NUMBER CD-323001	
REV. NO.		DATE		DESCRIPTION		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		SHEET NO. SHT CONT.	
01		13 49		FACTORY ASBUILT		211		212		REV. NO. 01	
00		13 04		FOR APPROVAL							





AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		DC SUPPLY DISTRIBUTION			الشركة الوطنية لنقل الكهرباء National Grid sa			
01	13 49	FACTORY ASBUILT	DRAWN BY RIZ		CHECKED BY KVR		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1			INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013		DATE COMPLETED		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY			-	C421	CD-323001	216/231
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA			01			



AS-BUILT BY

DATE

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

01

13 49

FACTORY ASBUILT

00

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FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY KVR

DATE STARTED 24.01.2013

DATE COMPLETED

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

87B+50BF-2/CU PROTN.RELAY - BINARY INPUTS

132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء

National Grid SA

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PLANT NO.

DRAWING NUMBER

SHEET NO.

SHT |CONT.

REV. NO.

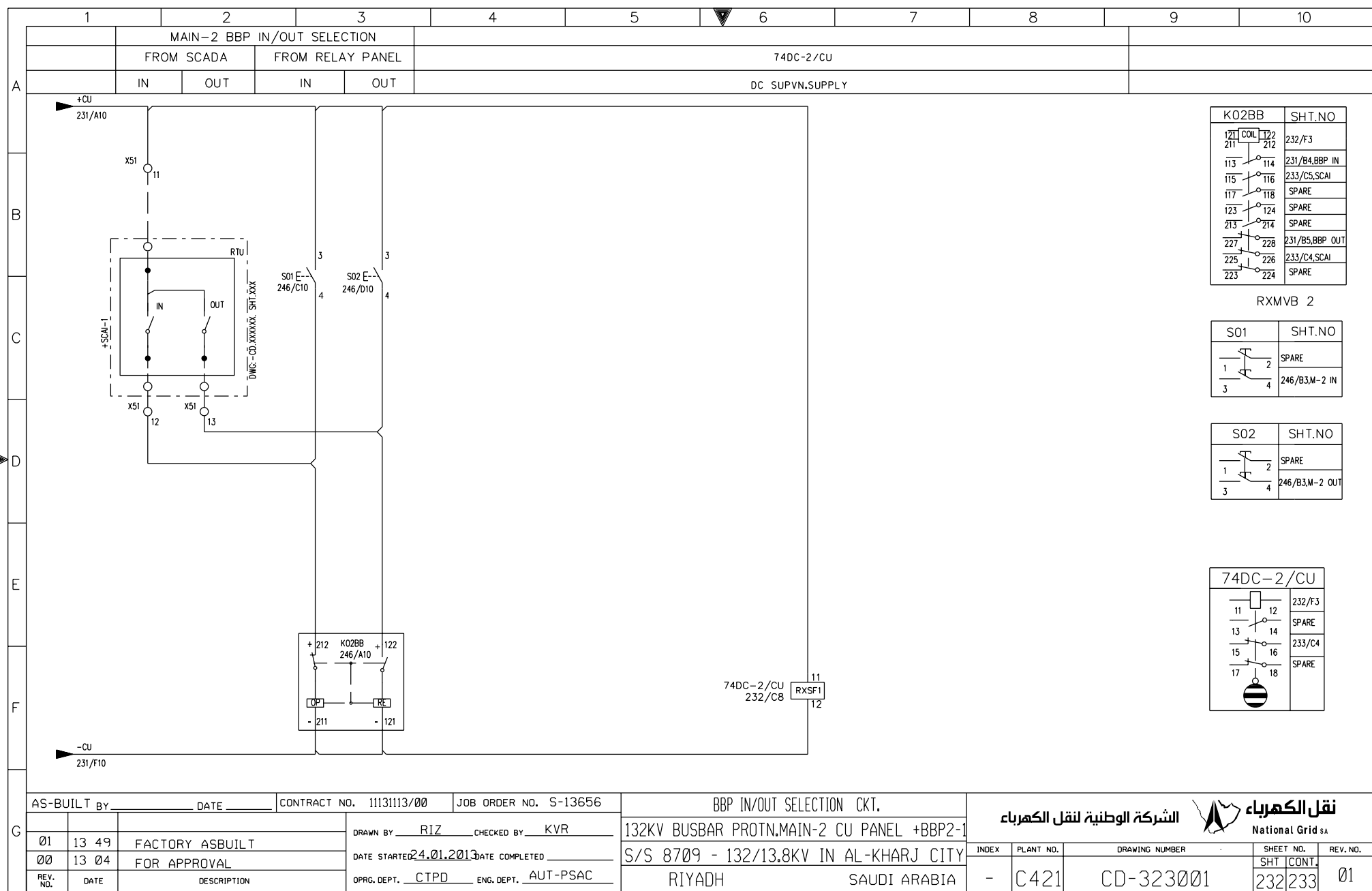
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C421

CD-323001

231 | 232

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K02BB	SHT.NO
121 COIL 122	232/F3
211 212	231/B4.BBP IN
113 114	233/C5.SCAI
115 116	SPARE
117 118	SPARE
123 124	SPARE
213 214	SPARE
227 228	231/B5.BBP OUT
225 226	233/C4.SCAI
223 224	SPARE

RXMVB 2

S01	SHT.NO
1 2	SPARE
3 4	246/B3,M-2 IN

S02	SHT.NO
1 2	SPARE
3 4	246/B3,M-2 OUT

74DC-2/CU	
11 12	232/F3
13 14	SPARE
15 16	233/C4
17 18	SPARE

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT	DRAWN BY RIZ	CHECKED BY KVR
00	13 04	FOR APPROVAL	DATE STARTED 24.01.2013	DATE COMPLETED
REV. NO.	DATE	DESCRIPTION	OPRG. DEPT. CTPD	ENG. DEPT. AUT-PSAC

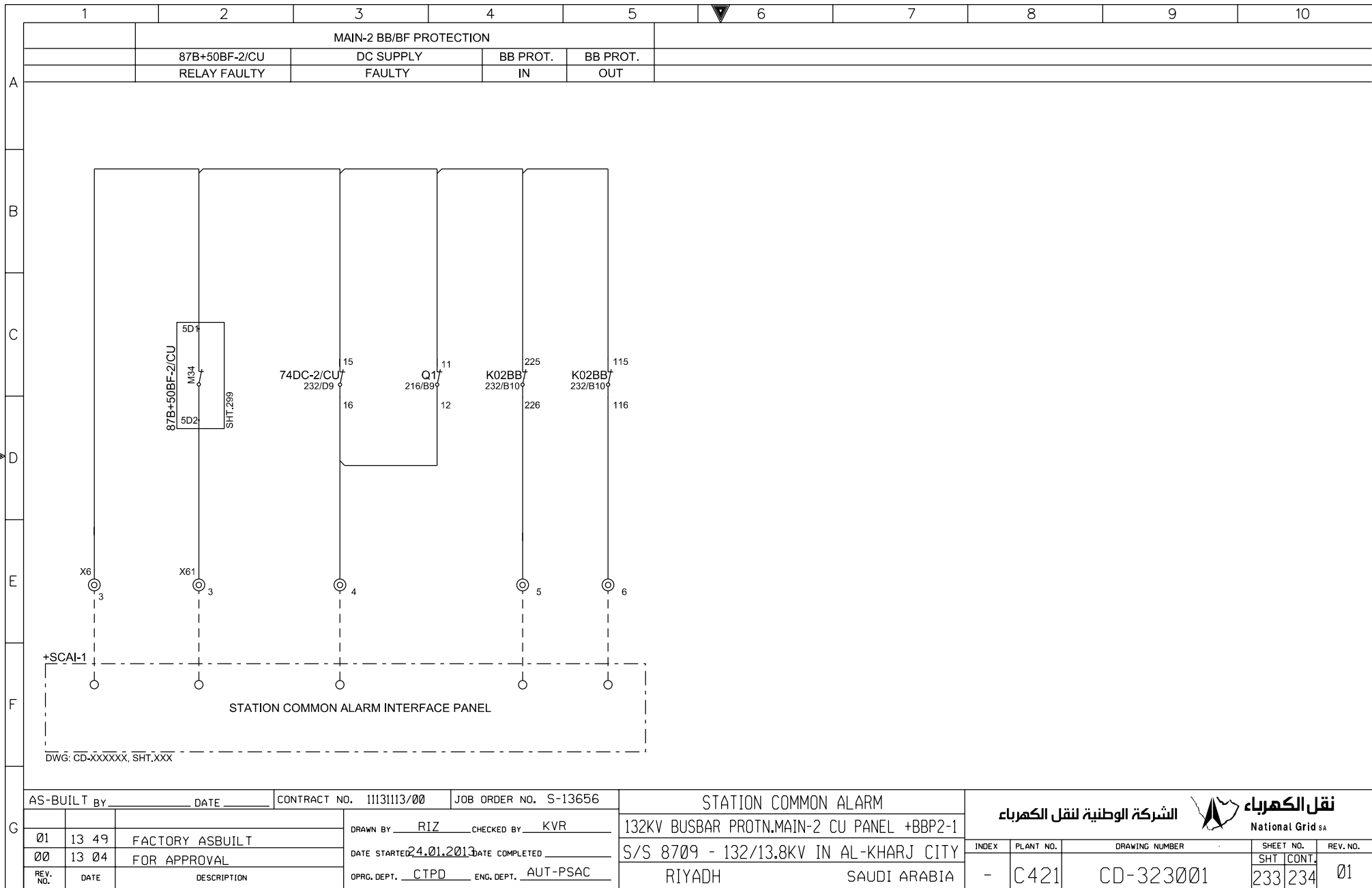
BBP IN/OUT SELECTION CKT.
132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

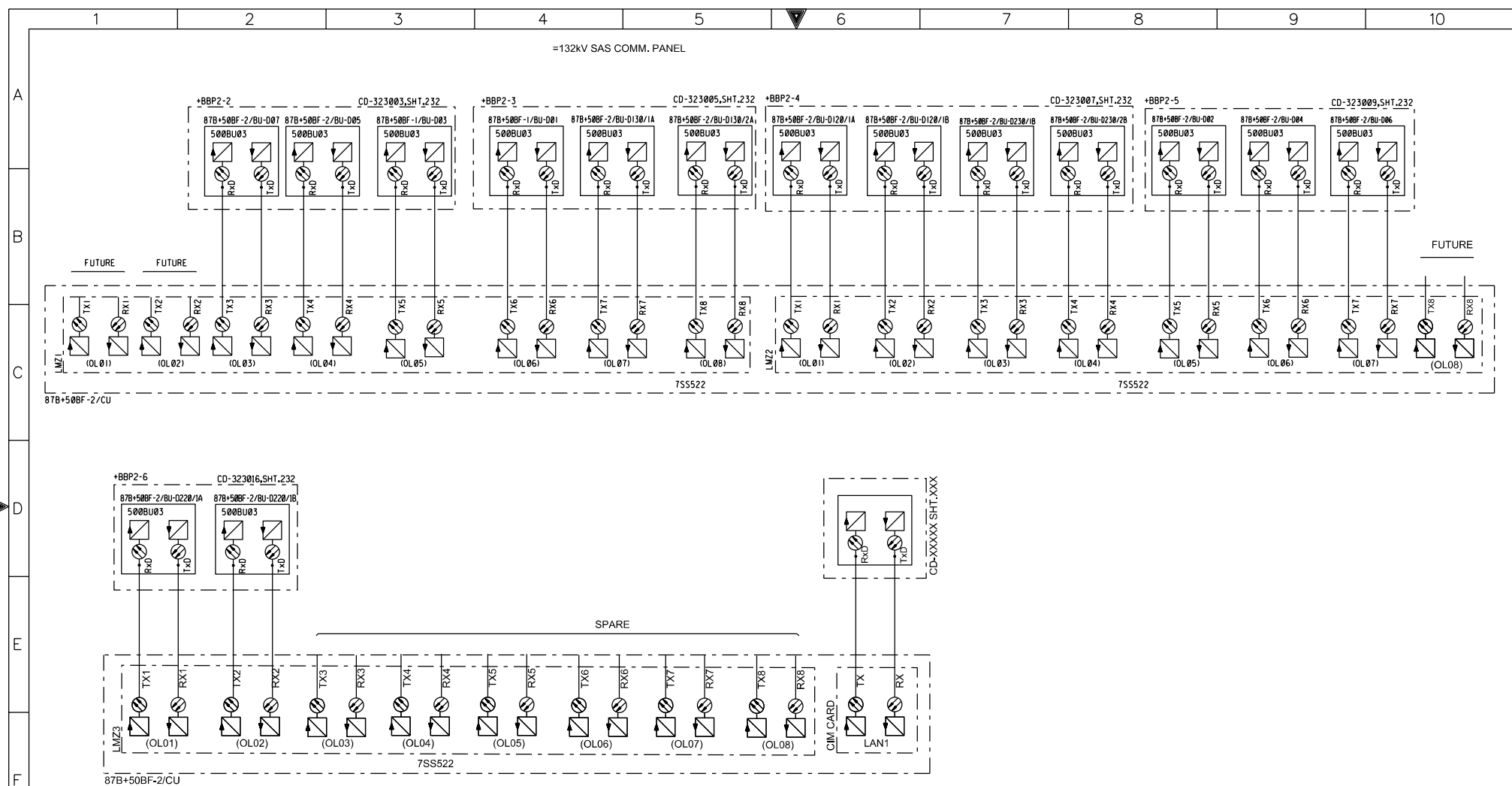
الشركة الوطنية لنقل الكهرباء



INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-323001	232/233	01

NG/D2-D (2012/01)
DMS VECTOR NGD200





AS-BUILT BY _____ DATE _____

CONTRACT NO. 11131113/00

JOB ORDER NO. S-13656

01

13 49

FACTORY ASBUILT

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FOR APPROVAL

REV. NO.

DATE

DESCRIPTION

DRAWN BY RIZ

CHECKED BY KVR

DATE STARTED 24.01.2013

DATE COMPLETED _____

OPRG. DEPT. CTPD

ENG. DEPT. AUT-PSAC

87B+50BF-2/CU COMM. TO BAY UNITS

132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1

S/S 8709 - 132/13.8KV IN AL-KHARJ CITY

RIYADH

SAUDI ARABIA

الشركة الوطنية لنقل الكهرباء



National Grid SA

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PLANT NO.

DRAWING NUMBER

SHEET NO.

SHT | CONT.

REV. NO.

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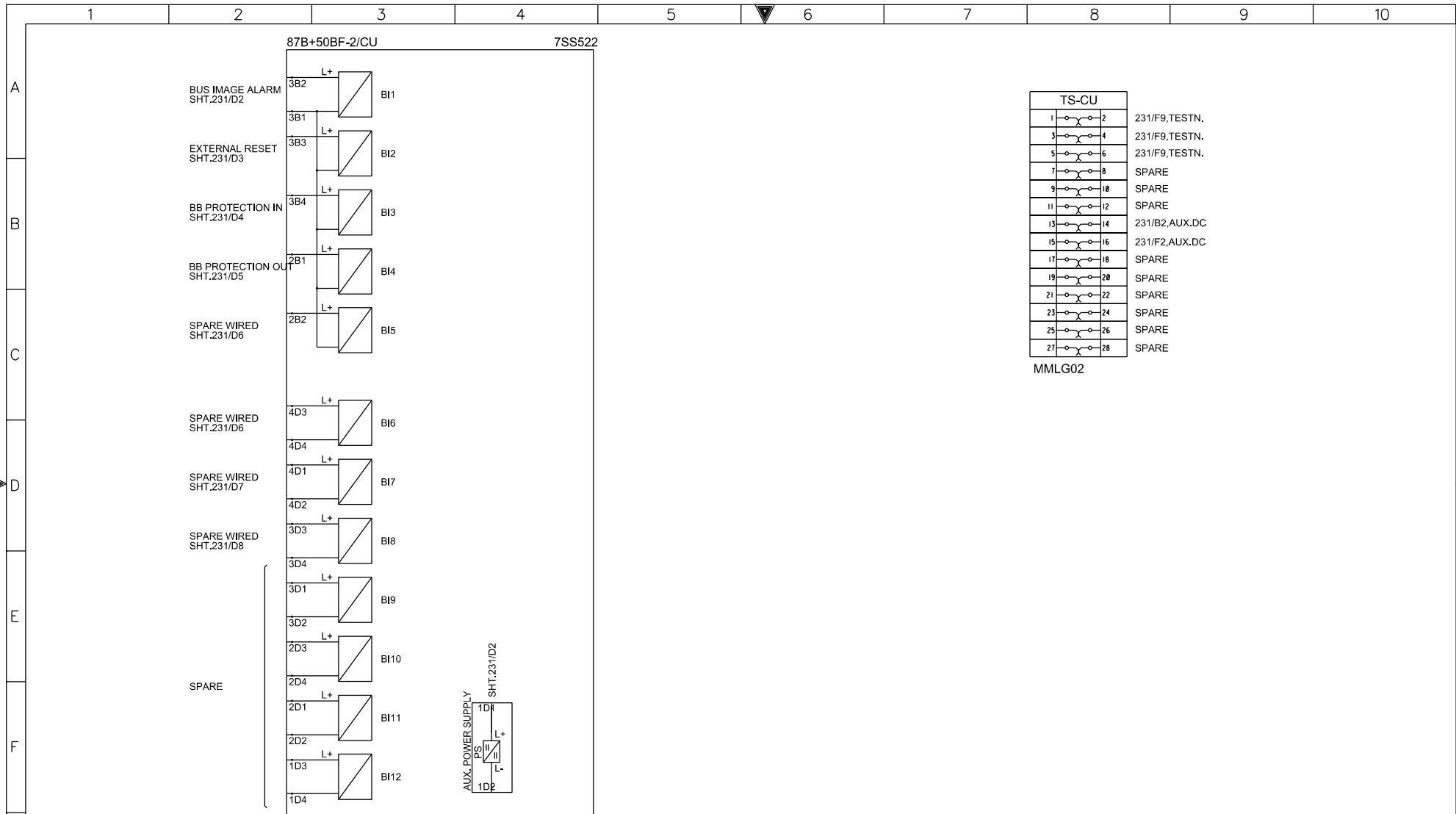
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CD-323001

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AS-BUILT BY _____ DATE _____			CONTRACT NO. 11131113/00		JOB ORDER NO. S-13656		87B+50BF-2/CU INTERNAL DIAGRAM		<div><div>الشركة الوطنية لنقل الكهرباء</div><div>نقل الكهرباء</div><div>National Grid SA</div></div>									
			DRAWN BY RIZ		CHECKED BY KVR		132KV BUSBAR PROTN.MAIN-2 CU PANEL +BBP2-1		INDEX		PLANT NO.		DRAWING NUMBER		SHEET NO.		REV. NO.	
01 13 49			FACTORY ASBUILT		DATE STARTED 24.01.2013		DATE COMPLETED		S/S 8709 - 132/13.8KV IN AL-KHARJ CITY		-		C421		CD-323001		SHT CONT.	
00 13 04			FOR APPROVAL		OPRG. DEPT. CTPD		ENG. DEPT. AUT-PSAC		RIYADH SAUDI ARABIA						298 299		01	
REV. NO.			DATE			DESCRIPTION												



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الشركة الوطنية لنقل الكهرباء

نقل الكهرباء

AS-BUILT BY _____ DATE _____ CONTRACT NO. 11131113/00 JOB ORDER NO. S-13656

01	13 49	FACTORY ASBUILT
00	13 04	FOR APPROVAL
REV. NO.	DATE	DESCRIPTION

DRAWN BY RIZ CHECKED BY KVR
DATE STARTED 24.01.2013 DATE COMPLETED _____
OPRG. DEPT. CTPD ENG. DEPT. AUT-PSAC

TERMINAL BLOCKS +BB2-1
132KV BUSBAR PROT.N.MAIN-2 CU PANEL +BBP2-1
S/S 8709 - 132/13.8KV IN AL-KHARJ CITY
RIYADH SAUDI ARABIA

INDEX	PLANT NO.	DRAWING NUMBER	SHEET NO.	REV. NO.
-	C421	CD-323001	301	01

NG/D2-D (2012/01)
DMS VECTOR NGD200